

N-Channel Enhancement Mode MOSFET

1. Product Information

1.1 Features

- Surface-mounted package
- Low Thermal Resistance

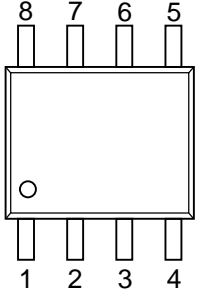
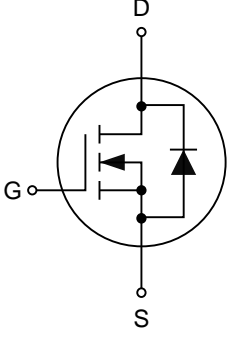
1.2 Applications

- Motor drivers
- DC/DC Converter

1.3 Quick reference

- $BV \leq 30\text{ V}$
- $R_{DS(ON)} \leq 7.5\text{ m}\Omega @ V_{GS} = 10\text{ V}$
- $P_{tot} \leq 3\text{ W}$
- $R_{DS(ON)} \leq 10\text{ m}\Omega @ V_{GS} = 4.5\text{ V}$
- $I_D \leq 11\text{ A}$

2. Pin Description

Pin	Description	Simplified Outline	Symbol
1,2,3	Source	 <p style="text-align: center;">Top View SOP8</p>	
4	Gate		
5,6,7,8	Drain		

3. Limiting Values

Symbol	Parameter	Conditions	Min	Max	Unit
V _{DS}	Drain-Source Voltage	T _C =25°C	30	-	V
V _{GS}	Gate-Source Voltage	T _C =25°C	-	±20	V
I _D *	Drain Current	T _C =25°C, V _{GS} =10 V	-	11	A
		T _C =25°C, V _{GS} =10 V	-	6.2	A
I _{DM} **	Pulsed Drain Current	T _C =25°C, V _{GS} =10 V	-	40	A
P _{tot}	Total Power Dissipation	T _C =25°C	-	3	W
T _{stg}	Storage Temperature		-55	150	°C
T _J	Junction Temperature		-55	150	°C
I _S	Diode Forward Current	T _C =25°C	-	11	A
R _{θJA} *	Thermal Resistance-Junction to Ambient		-	35.7	°C/W

Notes :

* Surface Mounted on 1 in² pad area, t ≤ 10 sec

** Pulse width ≤ 300 μs, duty cycle ≤ 2%

4. Marking Information

Product Name	Marking
KJ4406A	4406A

5. Ordering Code

Product Name	Package	Reel Size	Tape width	Quantity	Note
KJ4406A	SOP-8			3000	

Note: KUIJIEXIN defines "Green" as lead-free (RoHS compliant) and halogen free (Br or Cl does not exceed 900 ppm by weight in homogeneous material and total of Br and Cl does not exceed 1500 ppm by weight; Follow IEC 61249-2-21 and IPC/JEDEC J-STD-020C)

6. Electrical Characteristics (T_A=25°C Unless Otherwise Noted)

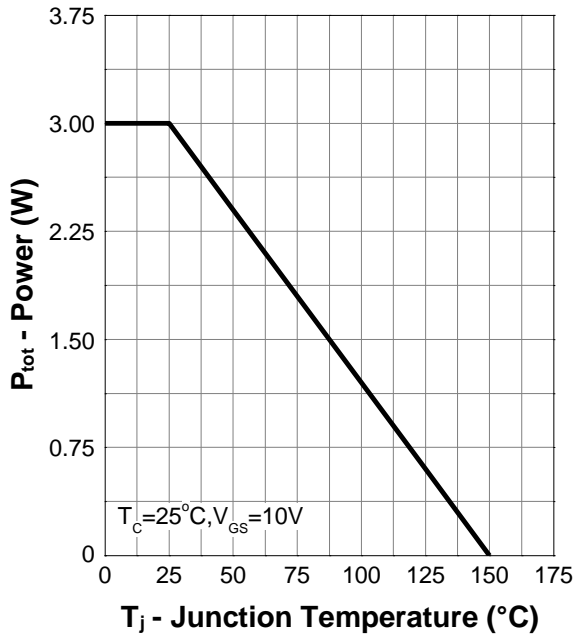
Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Static Characteristics						
B _V DSS	Drain-Source Breakdown Voltage	V _{GS} =0 V, I _D =250 μA	30	-	-	V
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _{DS} =250 μA	1.0	-	2.0	V
I _{DSS}	Zero Gate Voltage Source Current	V _{DS} =30 V, V _{GS} =0 V	-	-	1	μA
I _{GSS}	Gate Leakage Current	V _{GS} =± 20 V, V _{DS} =0 V	-	-	±100	nA
R _{DS(ON)} ^a	Drain-Source On-State Resistance	V _{GS} =10 V, I _D =10 A	-	6.8	7.5	mΩ
		V _{GS} =4.5 V, I _D =5 A	-	8.5	10	
Diode Characteristics						
V _{SD} ^a	Diode Forward Voltage	I _{SD} =11 A, V _{GS} =0 V	-	-	1.2	V
Dynamic Characteristics^b						
C _{iss}	Input Capacitance	V _{GS} =0 V, V _{DS} =10 V, Frequency=1 MHz	-	1050	-	pF
C _{oss}	Output Capacitance		-	142	-	
C _{rss}	Reverse Transfer Capacitance		-	119	-	
t _{d(on)}	Turn-on Delay Time	V _{DS} =15 V, V _{GEN} =10 V, R _G =3 Ω, I _D =11 A	-	5.7	-	ns
t _r	Turn-on Rise Time		-	4.8	-	
t _{d(off)}	Turn-off Delay Time		-	23	-	
t _f	Turn-off Fall Time		-	4	-	
Gate Charge Characteristics^b						
Q _g	Total Gate Charge	V _{GS} =10 V, V _{DS} =15 V, I _{DS} =5.5 A	-	16	-	nC
Q _{gs}	Gate-Source Charge		-	5.7	-	
Q _{gd}	Gate-Drain Charge		-	4	-	

Notes:

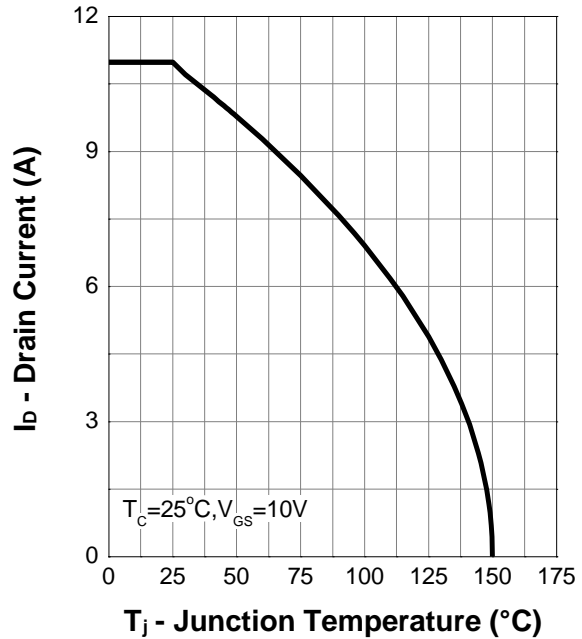
- Pulse test; pulse width ≤ 300 μs, duty cycle ≤ 2%
- Guaranteed by design, not subject to production testing

7. Typical Characteristics (Cont.)

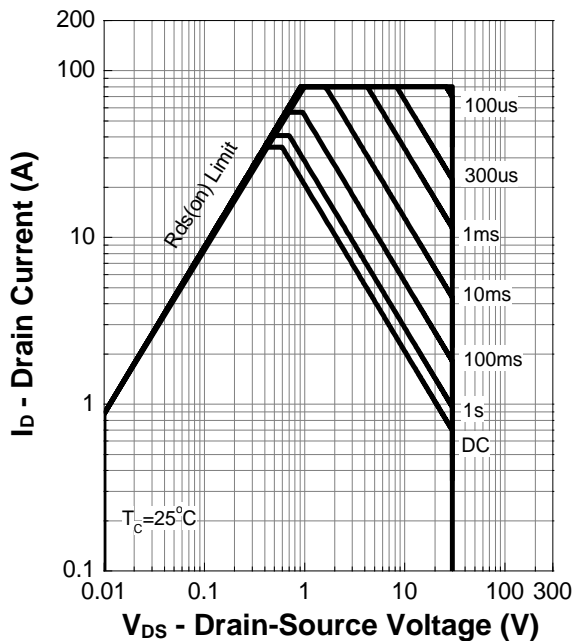
Power Capability



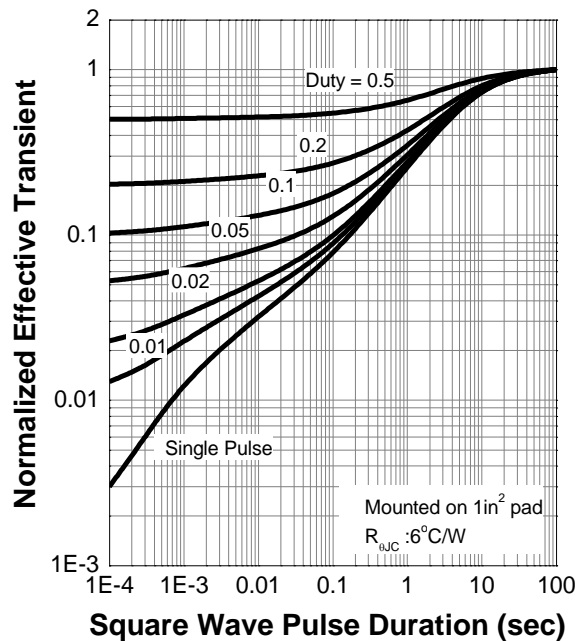
Current Capability



Safe Operation Area

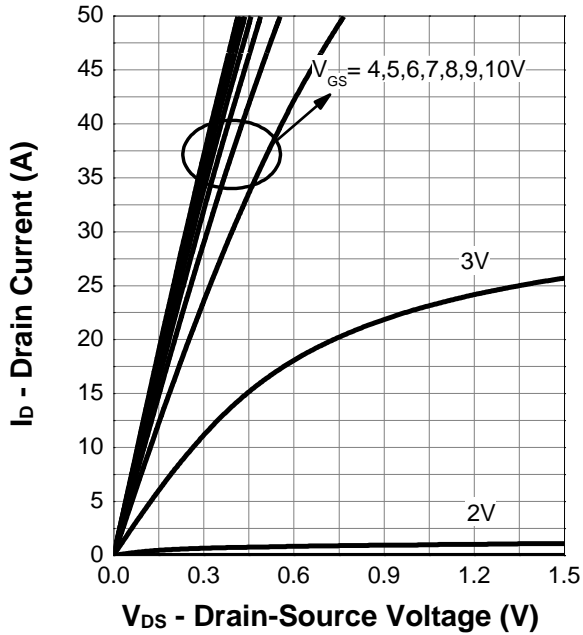


Transient Thermal Impedance

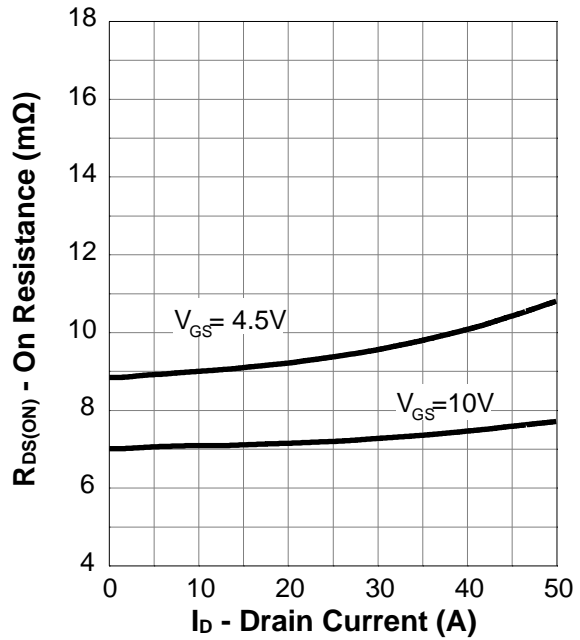


7. Typical Characteristics (Cont.)

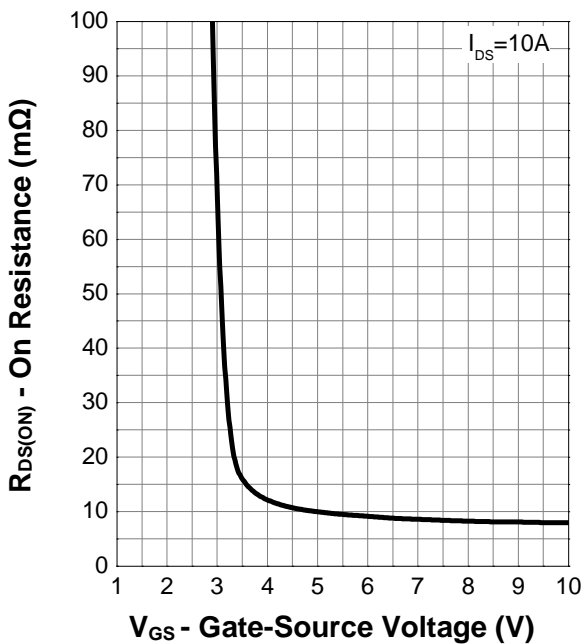
Output Characteristics



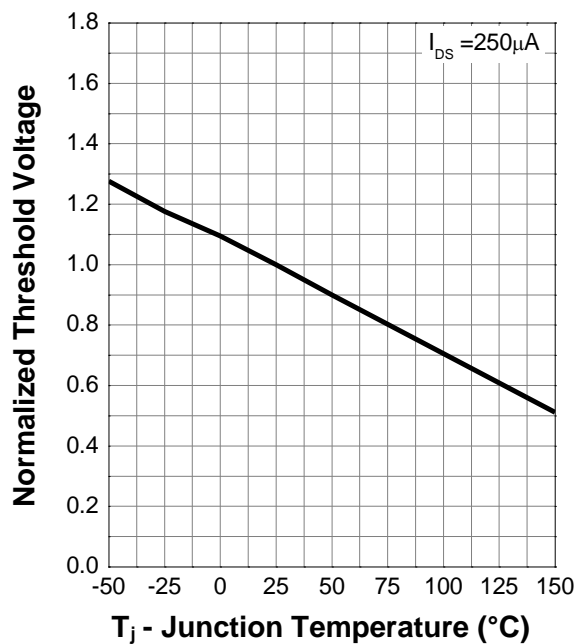
On Resistance



Transfer Characteristics

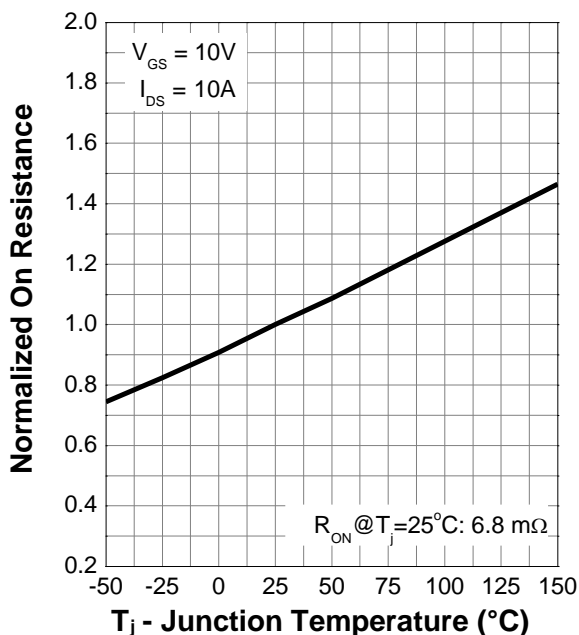


Normalized Threshold Voltage

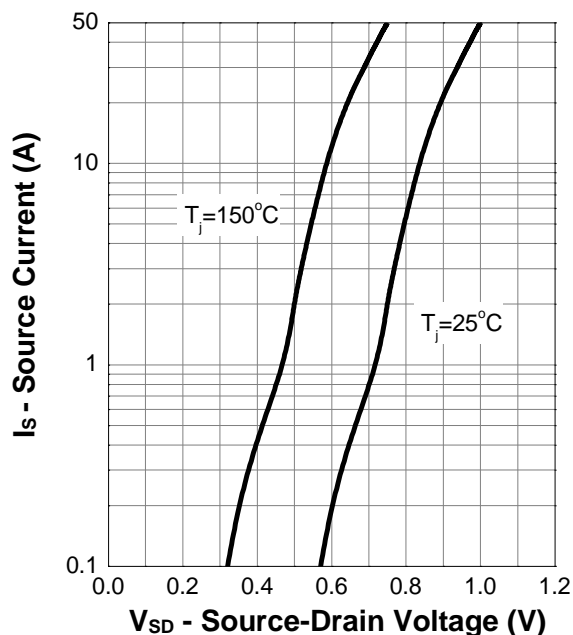


7. Typical Characteristics (Cont.)

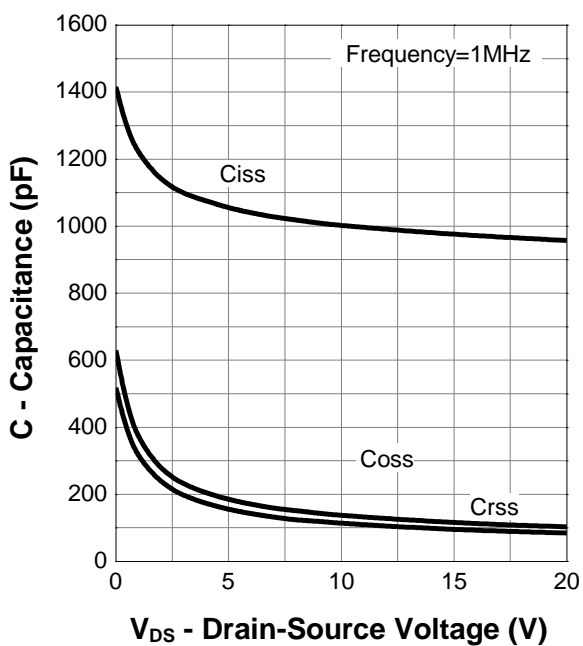
Normalized On Resistance



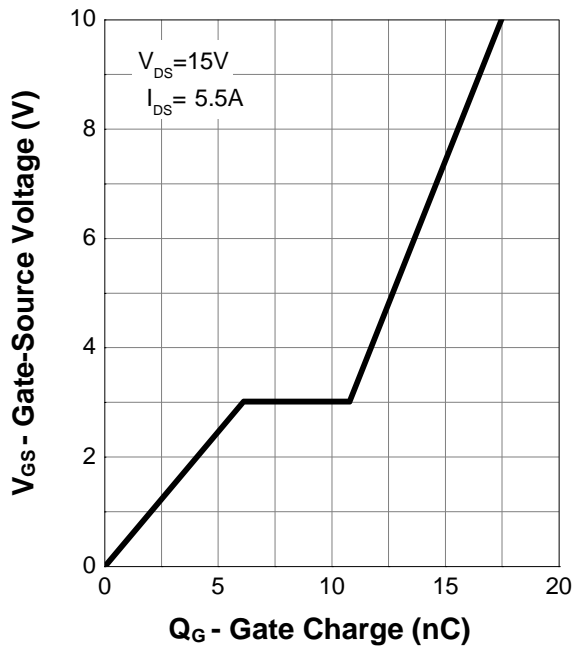
Diode Forward Current



Capacitance

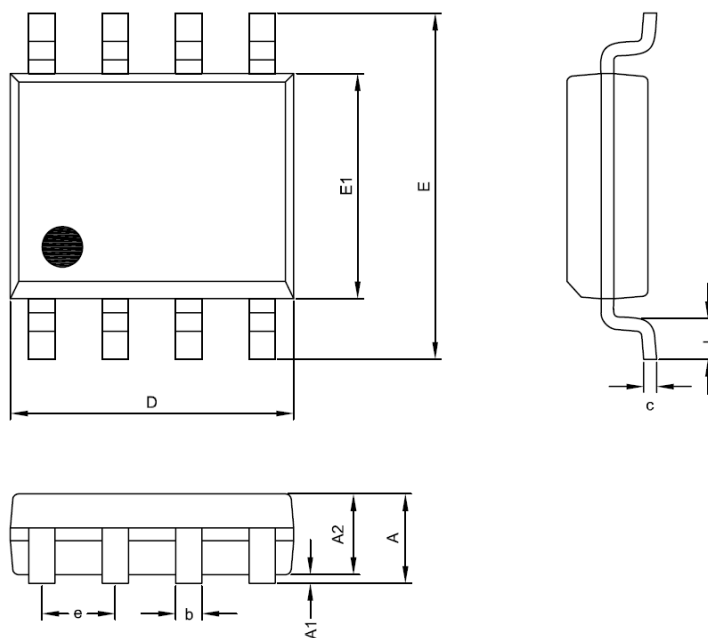


Gate Charge



8. Package Dimensions

SOP-8 Package



Symbol	Dimensions In Millimeters	
	MIN.	MAX.
A	1.35	1.75
A1	0.00	0.25
A2	1.15	1.50
D	4.80	5.00
E	5.80	6.20
E1	3.80	4.00
c	0.19	0.27
b	0.33	0.53
e	1.27 BSC	
L	0.40	1.27